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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,133	07/08/2003	Mary Morabito O'Neill	02W234	8119

7590 10/13/2006

Raytheon Company
Intellectual Property & Licensing, EO/E04/N119
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EXAMINER	
CHAMBERS, TROY	

ART UNIT	PAPER NUMBER
3641	

DATE MAILED: 10/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/615,133	O'NEILL ET AL.	
	Examiner	Art Unit	
	Troy Chambers	3641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) *3,5,7,9 and 10* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 2, 4, 6, 8 and 11-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The finality of the Office action mailed 01/31/2006 is withdrawn.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1, 2, 4, 6, 8 and 11-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, methods claims are required to be written as a series of steps to be taken in a logical order. Applicant's claim 1 initially requires that the aircraft be "provided in flight". The claim then goes on to require that an external viewing location be determined based on a "greatest threat". It is the examiner's position that the original specification did not describe such a procedure and is, therefore, new matter.

4. Claims 1, 2, 4, 6, 8 and 11-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. As discussed above, the applicant's original specification

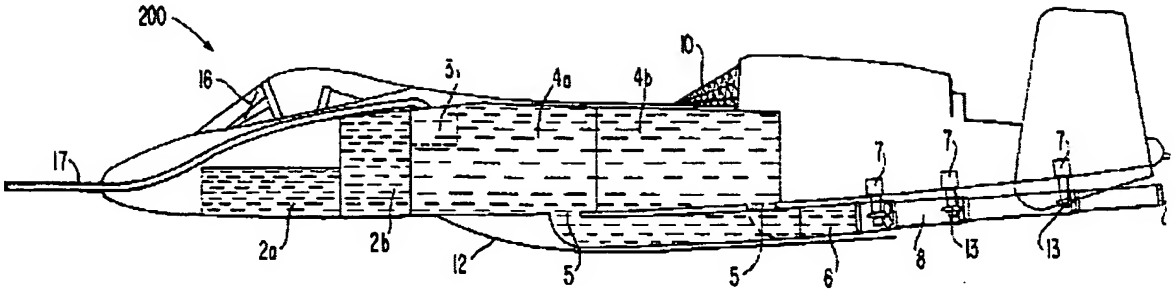
does not disclose how or in what manner one determines an external viewing location associated with a greatest threat once the aircraft is in flight.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 4, 6, 14, 15, 16, 22, 23, 24 and 26 are rejected under 35 USC 102(b) as being anticipated by U.S. 5549259 issued to Herlik. Herlik discloses a method of obscuring an aircraft from infrared detection from an external viewing location. Specifically, Herlik discloses an airtanker comprising a converted A-10 Thunderbolt aircraft for transporting a pilot and fire retardant. The aircraft has two engines as shown in Figs. 1 and 3. The aircraft is provided with a source of obscuring agent comprising water (col. 8, ll. 12-15). The obscuring agent is ejected out of nozzle 9. A viewing location is established within the stream of fluid. A fire can be considered an "attack" on an aircraft due to the heat and dense smoke emanating therefrom which necessitates determining which area of the fire poses the greatest threat and, therefore, should be dealt with first. The fire retardant can be generated on the aircraft (col. 8, ll. 7-16). The A-10 is not disclosed as having an infrared warning system or flares.



1.

7. Claims 1, 2, 4, 6, 14, 15, 16, 22, 23, 24 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5269132 issued to Loucks. Loucks discloses a method for obscuring a transport aircraft from a serious threat of surface-to-air and air-to-air infrared guided missiles. A jet aircraft engine having a tailpipe is shown in Fig. 5. The tailpipe includes a nacelle covering forming a liquid cooling chamber with a plurality of cooling panels 4 as shown in Fig. 1. The cooling chamber is supplied with a coolant mixed with water (col 3, ll. 4-9) contained in a reservoir 24. The coolant is ejected from the reservoir 24 via coolant line 22 to the coolant chamber and into a cavity formed within the cooling panels 4. The coolant filled panels form a vaporous boundary layer between an external viewing location and the heat source, which comprises engine exhaust flowing from the aircraft. The device can be used on auxiliary engines as well as main engines. The aircraft is not disclosed as having a flare or early warning system. The coolant does not mix with the gas discharge.

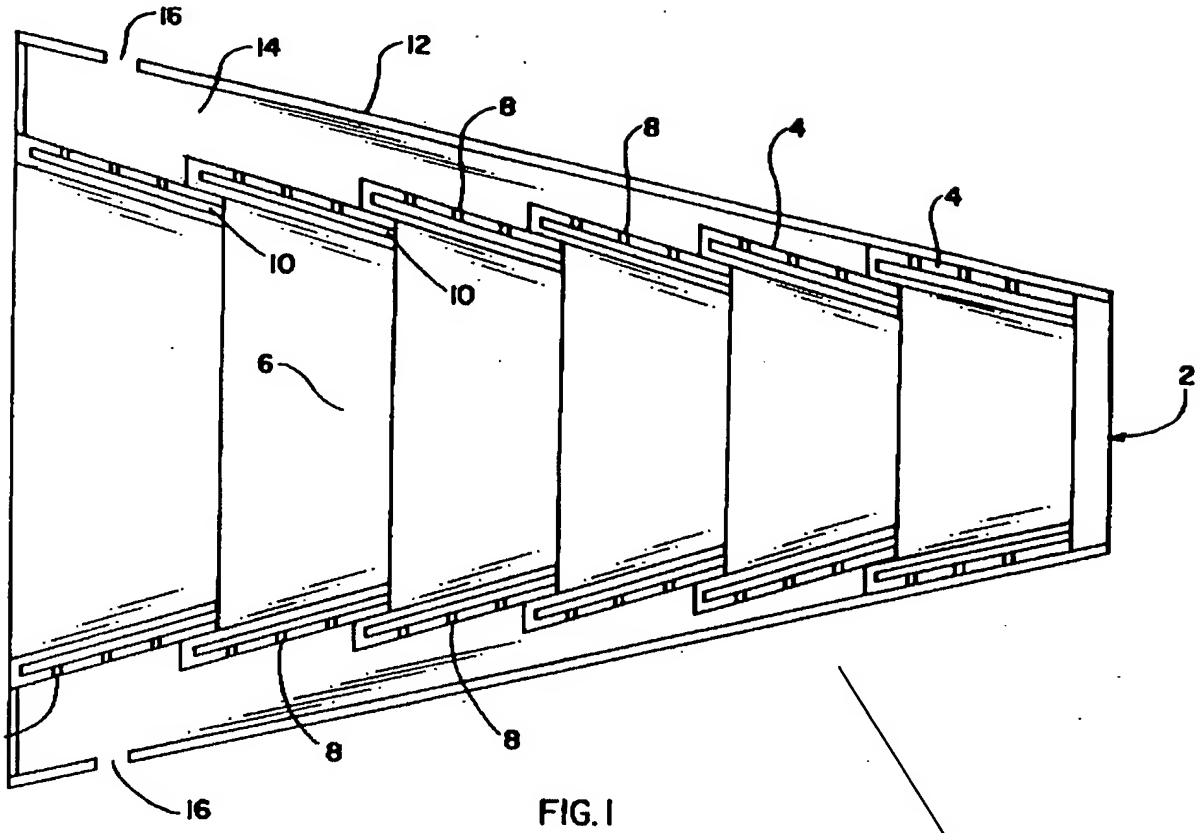
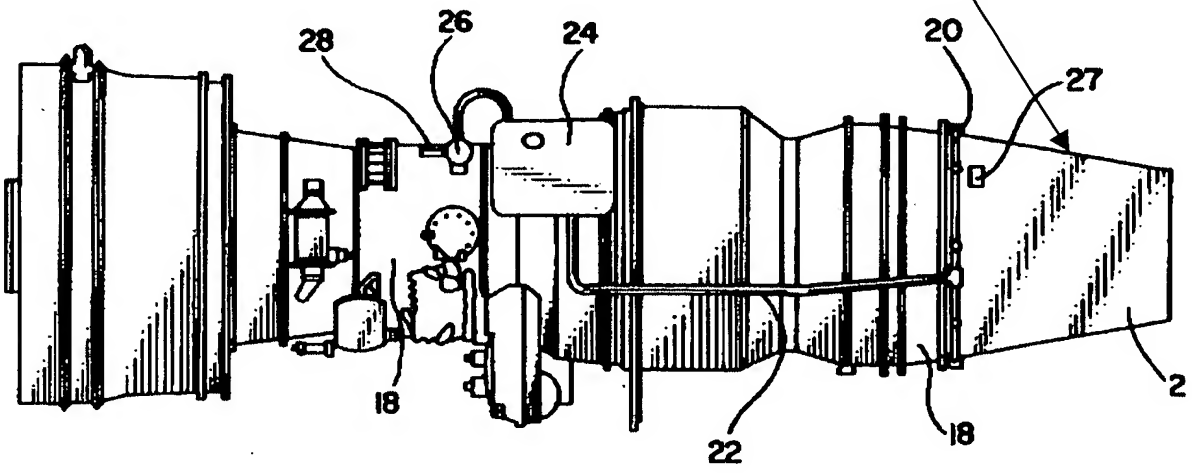


FIG. 1



8. With respect to applicant's claim 6, a positive step reciting "generating an obscuring agent on board the aircraft" should be used to further limit the independent claim. In any event, the water used in the reservoir is capable of being "generated" anywhere, including on-board the aircraft.

9. Claims 1, 2, 4, 6, 11, 14, 16, 22, 23, 24 and 26 are rejected under 35 USC 102(b) in view of US 4979571 issued to MacDonald. MacDonald discloses a method for obscuring an aircraft from infrared detection. Specifically, MacDonald discloses a foam producing apparatus for fighting fires comprising a helicopter as shown in Fig. 4 for transporting a pilot and fire retardant. A viewer at reference number 122 with infrared capabilities can see the heat given off by the engines of the helicopter. A mixture of CO2 and water is used to put out fires (col. 6, ll. 41-66) at 122. A viewer at viewing location 122 would have its view of the engine heat (or exhaust plume) obscured by the flow of fire retardant. The obscurant is generated on the aircraft as shown at col. 6, ll. 41-66+. The method is capable of obscuring an auxiliary unit of the helicopter as well as the main engines. There is no disclosure of flares or infrared systems on the helicopter. The retardant is ejected from the front of the helicopter.

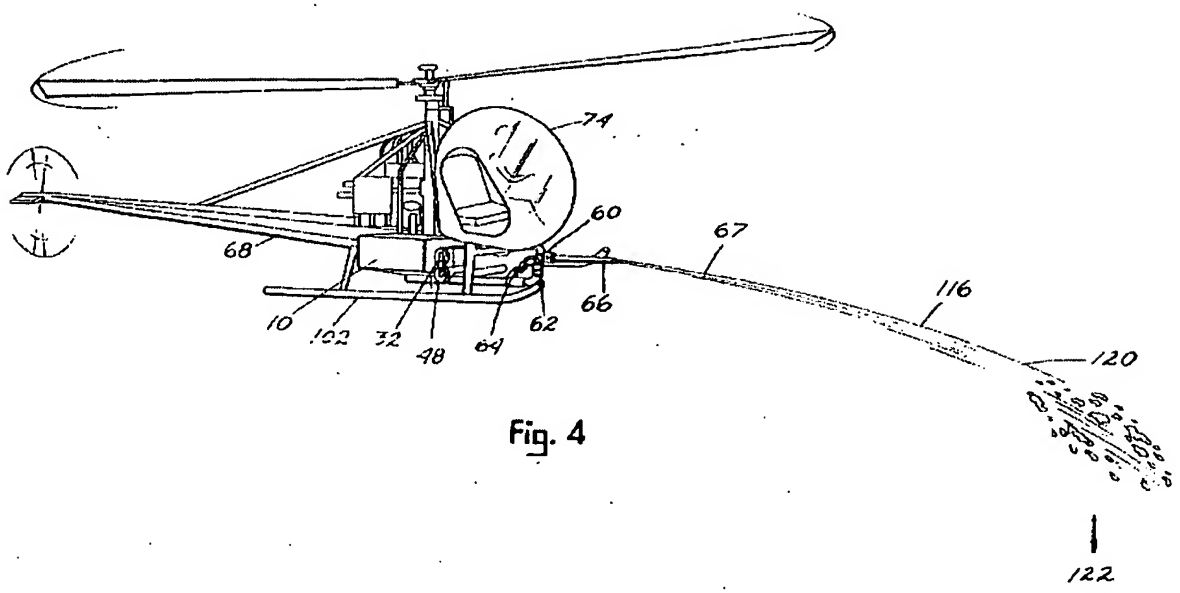


Fig. 4

10. Claims 1, 2, 4, 6, 8, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 22, 23, 24 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by the Space Shuttle ("shuttle") and the supporting documents cited herein. Any supporting documents used in the rejection are cited to show the inherent design features of the shuttle. The shuttle has remained the same for about 30 years with the exception of O-ring and crew safety design changes that have no bearing on the applicant's claimed invention.

11. The shuttle has two sets of engines: main engines which are fueled by liquid propellants and solid rocket boosters (SRBs) that are fueled by solid propellant. During the lift-off procedure the shuttle's main engines are brought to 90 percent power, creating a plume with a temperature in excess of 150 degrees Celsius. A person standing under the engines or three miles away would be able to view the plume created by the engines. The shuttle has a "source" of obscuring agent comprising liquid

hydrogen, liquid oxygen and solid propellant (See any one of "Space shuttle main engine biography", "Solid Rocket Boosters", "How Space Shuttles Work" and "Space shuttle main engine"). At T minus 0 seconds the SRBs engines ignite the "source" of obscurant comprising solid propellant. As shown in the photos below, the shuttle is riding on a plume having a temperature greater than 150 degrees Celsius and is followed by great clouds of exhaust material, said exhaust inherently including traces of carbon dioxide and water vapor having a temperature less than that of the plume. As shown below, a viewer directly below or to the side of the shuttle during launch would have its view (infrared or otherwise) obscured by the clouds of obscuring agent.

12. With respect to claim 2, the shuttle transports equipment and astronauts into space.

13. With respect to claim 4, the hot region is a plume flowing from either the main engines or SRBs.

14. With respect to claim 6, the exhaust gasses are generated in the engines of either the SRBs or main engines.

15. With respect to claim 8, the exhaust gas is formed in the internals of the main or SRB engine compartments.

16. With respect to claim 11, refer to the rejection of claim 1.

17. With respect to claim 12, solid particles of carbon particles are inherently present in the exhaust gas cloud.

18. With respect to claim 13, the SRBs contain other sources of fuel such as aluminum, iron oxide which would be present in the exhaust gasses at liftoff. (See, Solid Rocket Boosters).

19.

20. With respect to claim 14, the shuttle has 3 main engines and 2 SRBs.

21. With respect to claim 15, refer to the rejection of claim 1.

22. With respect to claim 17, refer to the rejection of claims 1, 2, 4, 6, 8, 11, 12, 14 and 15.

23. With respect to claim 18, the SRBs contain other sources of fuel such as aluminum, iron oxide and a polymer (See, Solid Rocket Boosters).

24. With respect to claim 19, the exhaust gas is formed in the internals of the main or SRB engine compartments.

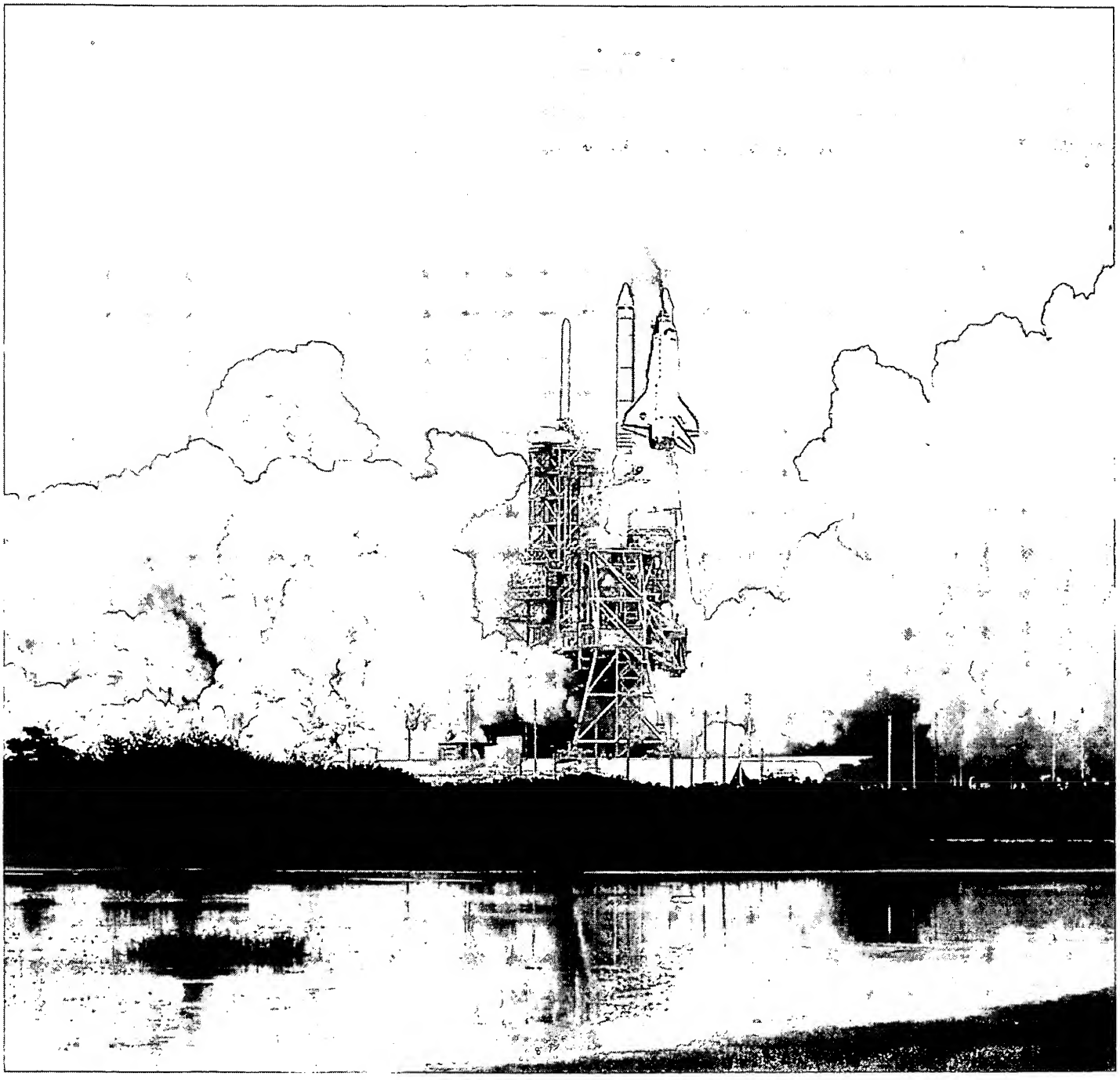
25. With respect to claims 20 and 21, refer to the rejection of the claims above.

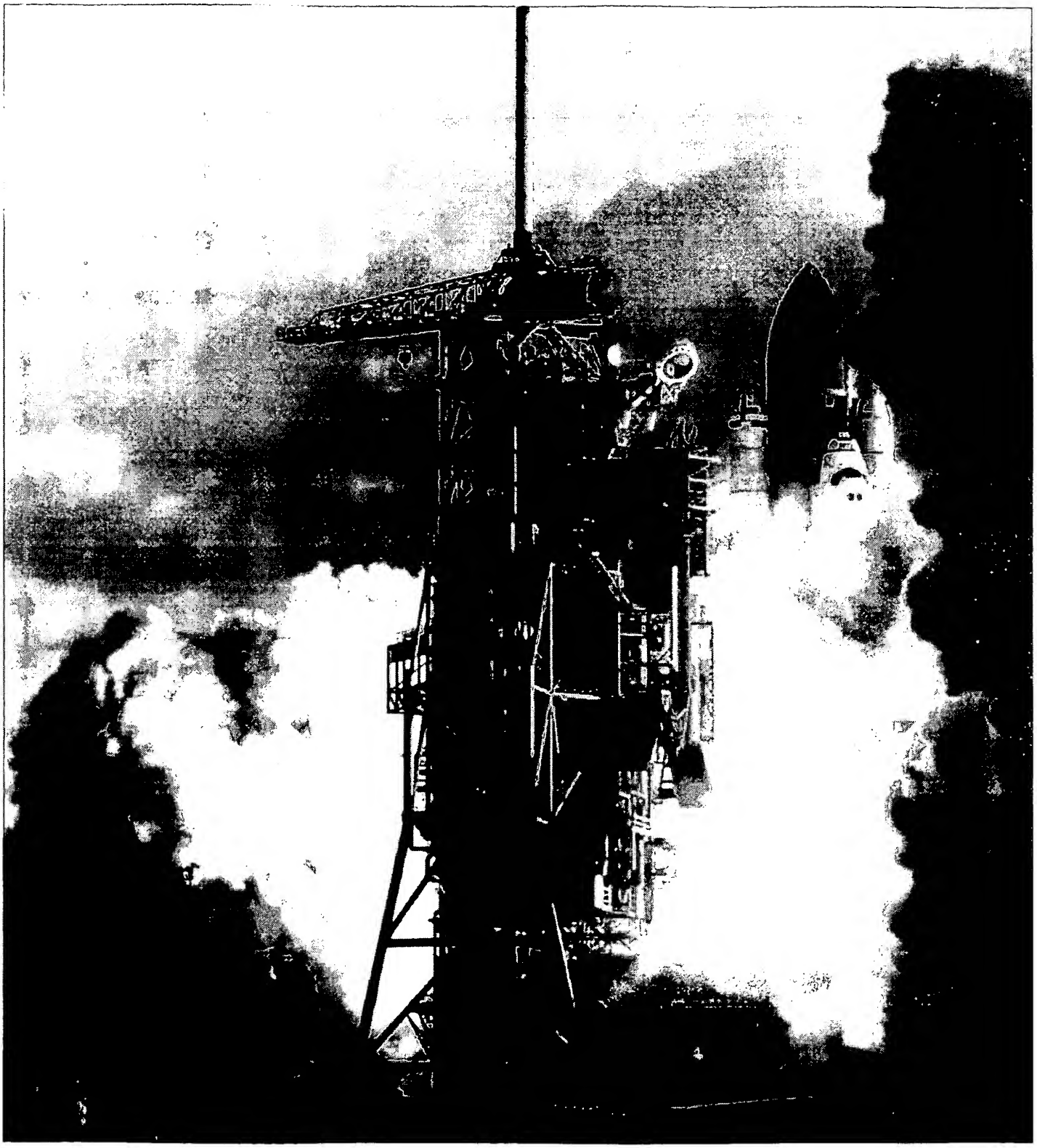
26. With respect to claim 22, the obscuring agent is generated in the engines of the shuttle.

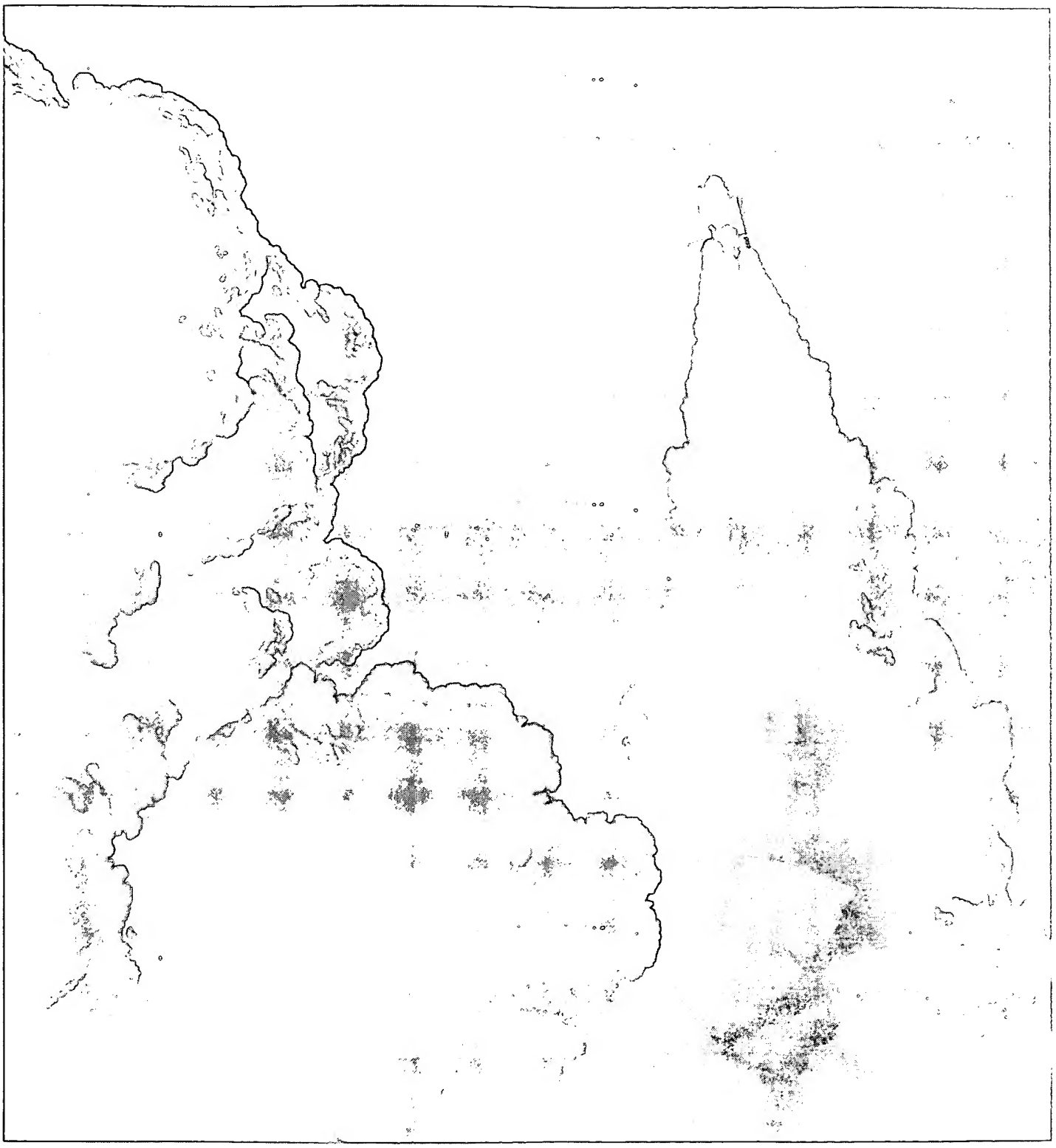
27. With respect to claim 23, the references provided do not disclose the shuttle having flares or infrared threat warning system.

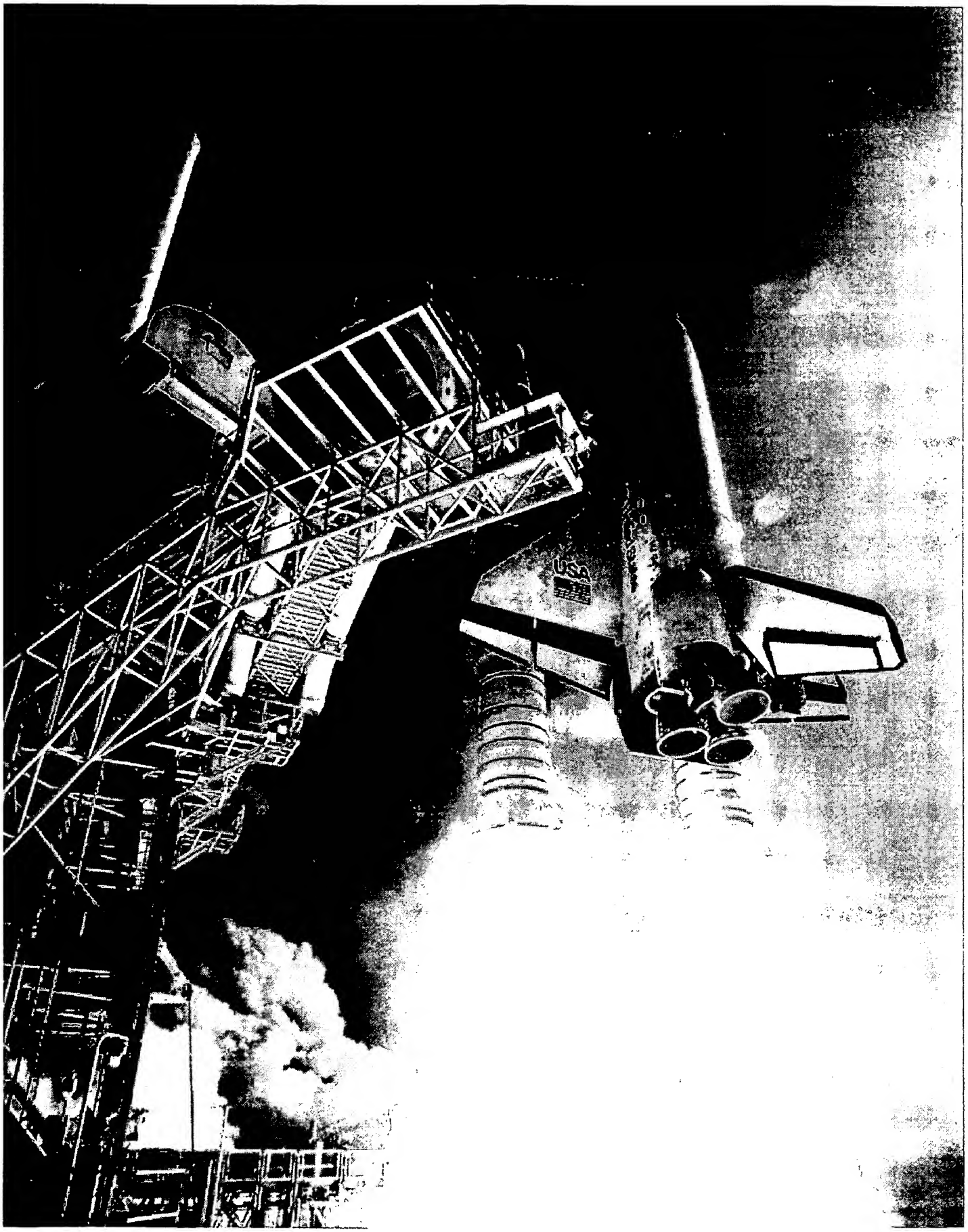
28. With respect to claim 24, the obscuring agent is ejected to the sides and rear of the shuttle.

29. With respect to claim 25, millions of pounds of solid and liquid rocket fuel are consumed and exhausted in a relatively short period which is thousands of times greater than the 4 pounds per second claimed by the applicant.





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Response to Arguments

30. Applicant's arguments filed 01/20/06 have been fully considered but they are not persuasive. Applicant has amended the claims with subject matter that is not positively recited and, therefore, do not serve to limit the claims. For example, if "an attack" is desired in claim 1, then it should be recited as a positive step (e.g. "attacking the aircraft..."). As it stands, the additional subject matter added to claim 1 merely require an external viewing location which is inherent in each cited prior art reference. Similar requirements are necessary for claims 17 and 22. In the "providing a transport aircraft" clause, the applicant should positively recite the desired structure (e.g., said aircraft having a nacelle or auxiliary power unit at X).

31. Claims 13 and 21 are addressed in the instant Office action.

Conclusion

32. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Troy Chambers whose telephone number is (571) 272-6874 between the hours of 7:00 a.m. to 3:30 p.m., M-F. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael J. Carone, can be reached at (571) 272-6873.

Troy Chambers
Primary Examiner
Art Unit 3641

TC
05 October 2006